DOCUMENT RESUME

ED 242 319 IR 020 081

TITLE Computer Literacy Project 1983.
INSTITUTION El Dorado County Office of Education, Placerville, CA.
PUB DATE 83
NOTE 144p.
AVAILABLE FROM El Dorado County Office of Education, 337 Placerville Dr., Placerville, CA 95667 ($10.00).
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

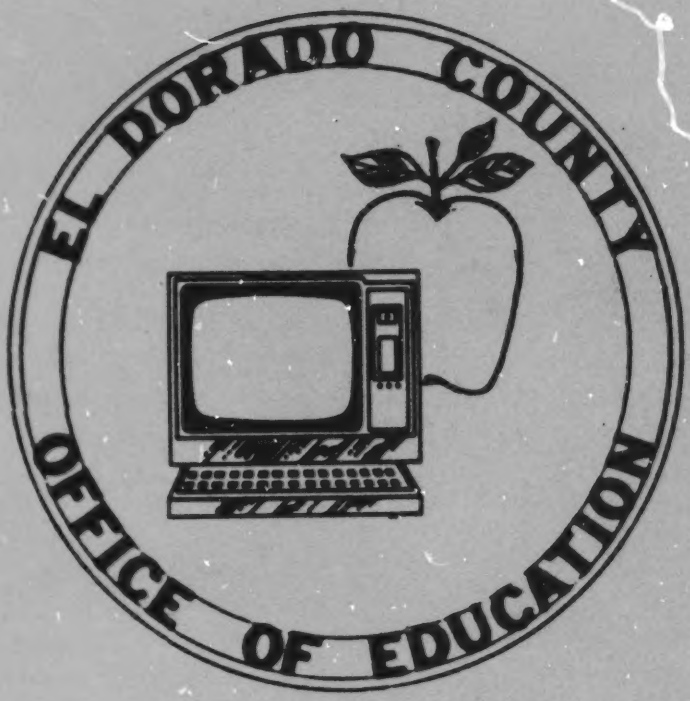
EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Behavioral Objectives; *Computer Literacy; *Computer Science Education; Course Organization; Educational Objectives; Elementary Secondary Education; Learning Activities; *Programing; Programing Languages; *Sequential Approach
IDENTIFIERS *Keyboarding; PF Project; *Social Impact

ABSTRACT

A K-12 computer literacy course of study is presented. Four basic parts are included: (1) a reference index which organizes 37 computer literacy topics into seven major categories; (2) a master index which presents goals for each topic by grade level and lists a reference number for each goal; (3) a scope and sequence organized by grade level which indicates when each goal is introduced, when it is continued and expanded, and when there is a major reintroduction; and (4) an expanded chart organized by grade level which presents a hierarchy of categories, topics, goals, behavioral objectives, and activities. The seven major categories are: what a computer is, keyboarding skills, computer applications, computer system components, computer operations, programming, and social implications of the computer. The scope and sequence is divided into user literacy goals and technical literacy goals. User literacy goals are those concepts, abilities, and skills that are essential for all people in the new information age. Technical literacy goals are designed for students who may be interested in pursuing careers in which computers or computer-related skills will be required. (DC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED242319



COMPUTER LITERACY PROJECT

1983

William K. (Ken) Lowry
Superintendent

IR020081

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☒ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

WALLY NEWBERRY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A message to teachers and administrators....

Some of our citizens remember how horses shied from funny looking, noisy autos in muddy streets. Others may recall those who were frightened of the new device called a telephone, fearful they might be electrocuted or "bewitched." All of us know how commonplace these devices are now, how trusted they are and how useful they have become.

Computers have passed the first hurdle for many. They have in about 30 years become commonplace. The machines are rapidly becoming as indispensable to business, industry and teaching as the telephone. Our country and its economic base has begun a shift from manufacturing as a main enterprise to information processing and high technology.

If we are to prepare our students to adequately cope and compete in our world of work and living, we must enable them to become computer literate. This document is designed to make this possible. Used properly it should offer sound guidance to our educators and boards as we thread our way through this exciting evolutionary period of our lives.

William K. (Ken) Lowry
County Superintendent of Schools

INTRODUCTION

The K-12 Computer Course of Study is designed to provide guidance to school boards of the county, administrators and teachers in implementing computer education over the next five years. It should be looked on as a guide for designing courses, training teachers, and purchasing computer hardware and software.

The Course of Study is an indication of what the county-wide Computer Literacy Committee felt "ought to be," rather than a list of minimum competency levels to be met by all students now or even five years from now. We realize that it will take a considerable investment in resources and training to be able to achieve these goals. We believe, however, that the Course of Study provides direction towards which computer education should be headed in the future.

All of us realize that the school day already is crowded with instructional requirements that seem to be added almost weekly with no subtraction of previous requirements. A close examination of the K-6 topics and goals will show that most of the instruction can be integrated into the exisiting curriculum. For example, the turtle graphics from Logo in grades K-3 could become part of the instruction in art and mathematics. The goals on running prepared software could be introduced as students were using computer-assisted instruction programs in social studies, language arts or virtually any other subject in the curriculum. This integration should follow naturally from the training on computers that is starting now and will continue for the next several years.

Presently, the focus for grades 7-12 is largely on content that would be covered in programming courses. However, one of the priorities over the next two years should be examining how computer-related topics and computer-assisted instruction can be integrated into academic, vocational and technical subjects.

The goal to integrate the computer into all aspects of the curriculum isn't accidental or a way to "squeeze it" into the school day. It is intended to mirror the changing role of the computer at home and work where it already is becoming an integral part of life. The discussions on the societal implications of the computer naturally fit into the social studies curriculum. Word processing similarly should become an integral part of the writing program.

The list of topics, goals and objectives is far from complete. As the framework is reviewed by teachers from throughout the county and implemented in the classrooms, it will become apparent that other topics, goals, objectives and activities would be appropriate as additions or substitutions. We seek your suggestions. The Computer Course of Study will be maintained on the El Dorado County Office of Education Electronic Bulletin Board so that revisions can be made frequently. We hope that this will be a "living" curriculum; one that will be constantly expanded, revised and improved.

Larry Hannah, Ph.D.
Consultant for the Project

ACKNOWLEDGEMENTS

The Scope and Sequence and Goals and Objectives are a product of the participants of the El Dorado County Computer Literacy Project, 1983. Appreciation is extended to the following people who contributed to this project.

Tryon Baily, Latrobe School
Alan Bauman, Gold Oak
David Berne, Sierra House
Reid Briggs, El Dorado Union H.S.
Bonnie Byram, Camerado Springs
Tony Camuti, Green Valley
Sylvia Crane, Jackson
Chuck Dodd, Rescue
Bill Easley, Pinewood
Doug Forte, Meyers
Mary Ann Gregg, Oak Ridge H.S.
Dwain Haines, Ponderosa H.S.
Mitch Hall, Pinewood
Richard Jamieson, South Tahoe H.S.
Nancy Jessup, Golden Sierra H.S.
Becky Lemos, Sierra
Cathy Locher, Schnell
Dalton Moultrie, Al Tahoe
Milt Mulligan, Independence
Jackie Nelson, Lake Tahoe District
Diane Nunes, William Brooks
Sue Plank, Gold Trail
Kay Runyan, County Office
George Sabato, Markham
Carl Shore, Northside
Judy Smith, County Office
Jack Stafford, South Tahoe Int.
Jeanie Stewart, Camerado Springs
Kristen Strand, Pioneer
Janet Thurman, Bijou
Keith Von Borstel, Georgetown
Charlie Watters, Herbert Green
Misty Wilson, Charles Brown

How to Use the Course of Study and Numbering System

There are four basic documents in the Computer Course of Study: 1) an Index Reference that lists all categories and topics in the Course of Study; 2) a Master Index that adds goals by grade level and lists a reference number for each goal; 3) a Scope and Sequence that lists goals by grade level and indicates the grade levels at which each topic is introduced, where the treatment of the topic is continued and expanded, and where there is a major reintroduction, and 4) a list of categories, topics, goals, objectives and activities by grade level.

The index number is designed to allow you to call the EDCOE Electronic Bulletin Board and call up all information on any given category, topic, goal or grade level. If, for example, you wanted to find all the goals and objectives dealing with the impact of computers on people and society, you would locate the category and topic (7.2) and ask for a listing or printout of all the appropriate goals and objectives.

By maintaining the Course of Study on the Electronic Bulletin Board, we will be able to make frequent additions and revisions to the Course of Study. A teacher who discovers an effective new activity will be able to list the activity on the Bulletin Board by index number. Any teacher seeking additional activities will be able to see this new activity as well as the original activities and any others that had been included recently. New suggested activities will be reviewed periodically to see if they should be added to the basic Course of Study or used to replace a previous activity. In this way, the Course of Study becomes a living, ever-improving resource for teachers and administrators.

The following example demonstrates how the numbering system works.

MASTER INDEX

7.0 SOCIAL IMPLICATIONS OF THE COMPUTER

7.1 Impact on careers

7.2 Impact on people and society

5th	Impact of computers on society	(7.2.5.1)
5th	Moral and legal issues	(7.2.5.2)
7th	Impact of computers on society	(7.2.7.1)

7.2.5.1

7 = category #7, Social implications of the computer
.2 = topic #2, Impact of computers on people and society
.5 = grade level 5 (I, II and III refer to high school levels)
.1 = goal #1 for this topic at the 5th grade level

Relationship of Various Parts of the Course of Study

Excerpts are shown below from each of the documents in the Course of Study. Notice how each one expands the scope of information provided.

1) The Index Reference

INDEX REFERENCE

7.0 SOCIAL IMPLICATIONS OF THE COMPUTER

7.1 Impact on careers

7.2 Impact on people and society

2) The Master Index

MASTER INDEX

7.0 SOCIAL IMPLICATIONS OF THE COMPUTER

7.1 Impact on careers

7.2 Impact on people and society

5th	Impact of computer [illegible]y	(7.2.5.1)
5th	Moral and legal issues	(7.2.5.2)
7th	Impact of computers on society	(7.2.7.1)

3) The Scope and Sequence by Grade Level

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8	USER LITERACY LEVEL I I I	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8	TECHNICAL LITERACY LEVEL I I I
5 (continued)			I I I		I I I
INDEX #					
7.2	IMPACT OF COMPUTERS ON PEOPLE AND SOCIETY	I C M C C C C			M C C

4) Goals, Objectives and Activities (by grade level)

SOCIAL IMPLICATIONS OF THE COMPUTER — IMPACT ON PEOPLE AND SOCIETY — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
7.2.5.1	The student will recognize that computers have an effect on society and the individual.	The student will identify ways computers can and have had a positive and negative impact on society.	Students bring in several items to demonstrate the efficiency of computers in daily life, such as: zebra codes on labels, utility bills, register receipts, fast-food orders, etc.

Additional Information on the Course of Study

User and Technical Literacy

The Scope and Sequence is divided into User Literacy and Technical Literacy. Competencies listed under "User Literacy" are those concepts, abilities and skills we believe will be essential for all people in the new information age, no matter what their occupation might be. "Technical Literacy" goals are designed for students who may be interested in pursuing careers in which computers or computer-related skills will be required.

Specific Makes of Computers

The Course of Study has been written so that it is not computer-specific. Some goals, however, might require the use of a computer with a specific capability (e.g., Logo). These requirements should be examined prior to the purchase of new computers, peripherals and software.

Rate of Implementation

The Scope and Sequence was designed to guide development of a K-12 Course of Study. In order to do this, the goals and objectives for each grade level were written as they should be once the entire curriculum is in place. We realize that there will be a transition period in which students will not have had the opportunity to develop skills which are listed for earlier grade levels. We suggest that you refer to the Scope and Sequence to see these competencies. These can serve as a guide to instruction during this transition period.

Teacher Training

The El Dorado County Office of Education is committed to supporting districts and teachers in implementing the Computer Course of Study. For the next several years, workshops will be held at the county and district levels to assist teachers in developing those skills necessary to integrate these goals into their instruction.

Sources for Assistance

There was one teacher from virtually every school in the County on the Computer Literacy Committee that developed the Computer Course of Study. While these teachers will not be able to answer every conceivable question, they will be able to provide assistance in many situations and also refer you to other sources of information. The committee members are listed at the beginning of this document. Help also will be available through the Electronic Bulletin Board.

INDEX REFERENCE

1.0 WHAT A COMPUTER IS
- 1.1 What a computer does (general)
- 1.2 How a computer works
- 1.3 History of computers
- 1.4 Computer terminology

2.0 KEYBOARDING SKILLS
- 2.1 Keyboard experience

3.0 COMPUTER APPLICATIONS
- 3.1 Uses and applications of computers (general)
- 3.2 Problem solving
- 3.3 Advantages and disadvantages of computers
- 3.4 Artificial intelligence
- 3.5 Computers in business and industry
- 3.6 Word processing
- 3.7 Data bases and data management
- 3.8 Numerical and financial management
- 3.9 Future uses of computers

4.0 COMPUTER SYSTEM COMPONENTS
- 4.1 Basic computer system components
- 4.2 Memory/storage systems
- 4.3 Hardware setup and takedown
- 4.4 Preventive maintenance
- 4.5 Systems analysis and configuration

5.0 COMPUTER OPERATIONS
- 5.1 Using prepared software
- 5.2 Algorithms and logical sequencing
- 5.3 Logical operations
- 5.4 Operating systems

6.0 PROGRAMMING
- 6.1 Programmable devices
- 6.2 Logo and turtle graphics
- 6.3 Common BASIC
- 6.4 Structured BASIC
- 6.5 Pascal
- 6.6 COBOL
- 6.7 FORTRAN
- 6.8 LISP
- 6.9 RPG
- 6.10 Authoring programs and languages
- 6.11 Assembly language
- 6.12 Comparison of programming languages

7.0 SOCIAL IMPLICATIONS OF THE COMPUTER
- 7.1 Impact on careers
- 7.2 Impact on people and society

BEST COPY AVAILABLE

SCOPE AND SEQUENCE: EL DORADO COUNTY

MASTER INDEX

CODING = 1.2.3.4

1 = CATEGORY
2 = TOPIC
3 = GRADE LEVEL (*I, II, III refer to high school levels*)
4 = GOAL

1.0 WHAT A COMPUTER IS

1.1 What a computer does (general)

K	Computer functions	(1.1.K.1)
K	Computer characteristics	(1.1.K.2)

1.2 How a computer works

6th	Computer number systems	(1.2.6.1)

1.3 History of computers

1st	Early computing devices	(1.3.1.1)
5th	History of computers	(1.3.5.1)

1.4 Computer terminology

K	Beginning computer vocabulary	(1.4.K.1)
3rd	Computer technical terms	(1.4.3.1)

2.0 KEYBOARDING SKILLS

2.1 Keyboard experience

K	Using the computer keyboard	(2.1.K.1)
1st	Using the computer keyboard	(2.1.1.1)
2nd	Using the computer keyboard	(2.1.2.1)
3rd	Using the computer keyboard	(2.1.3.1)
4th	Using the computer keyboard	(2.1.4.1)
5th	Using the computer keyboard	(2.1.5.1)
6th	Using the computer keyboard	(2.1.6.1)
7th	Using the computer keyboard	(2.1.7.1)
7th	Using the computer keyboard	(2.1.7.2)

BEST COPY AVAILABLE

3.0 COMPUTER APPLICATIONS

3.1 Uses and applications of computers (general)

K	Various computing devices	(3.1.K.1)

3.2 Problem solving

1st	Problem solving with computers	(3.2.1.1)
3rd	Problem solving strategies with Logo	(3.2.3.1)
	See 6.2.3.1	
4th	Problem solving strategies	(3.2.4.1)
7th	Problem solving applications	(3.2.7.1)
7th	Problem solving through computer simulations	(3.2.7.2)

3.3 Advantages and disadvantages of computers

2nd	Advantages of computers	(3.3.2.1)
2nd	Disadvantages of computers	(3.3.2.2)

3.4 Artificial intelligence

3.5 Computers in business and industry

6th	Industrial applications of computer-controlled devices	(3.5.6.1)
7th	Industrial applications of computers	(3.5.7.1)
7th	Reasons for automation	(3.5.7.2)
I	Applications of automation	(3.5.I.1)

3.6 Word processing

2nd	Familiarization with word processing	(3.6.2.1)
3rd	Uses of a word processor	(3.6.3.1)
3rd	Introduction to using a word processor	(3.6.3.2)
3rd	Word processing command keys	(3.6.3.3)
4th	Using a word processor	(3.6.4.1)
5th	Specialized commands in word processing	(3.6.5.1)
6th	Applying word processing	(3.6.6.1)
7th	Applying word processing	(3.6.7.1)
8th	Applying word processing	(3.6.8.1)

3.7 Data bases and data management

5th	Introduction to data base management	(3.7.5.1)
6th	Applying data base management	(3.7.6.1)
8th	Applying data base management	(3.7.8.1)

3.8 Numerical and financial management

7th	Using numerical management programs	(3.8.7.1)

3.9 Future uses of computers

5th	Future uses of computers	(3.9.5.1)

BEST COPY AVAILABLE

4.0 COMPUTER SYSTEM COMPONENTS

4.1 Basic computer system components

K	Computer hardware components	(4.1.K.1)

4.2 Memory/storage systems

5th	Memory storage devices	(4.2.5.1)

4.3 Hardware setup and takedown

4.4 Preventive maintenance

K	Care and handling of hardware	(4.4.K.1)
K	Care and handling of software	(4.4.K.2)

4.5. Systems analysis and configuration

I	Differences between computers	(4.5. I.1)
II	Systems analysis and cofiguration: hardware	(4.5.II.1)
II	Systems analysis and cofiguration: software	(4.5.II.2)

5.0 COMPUTER OPERATIONS

5.1 Using prepared software

K	Running computer programs	(5.1.K.1)
2nd	Using menus within programs	(5.1.2.1)
2nd	Correcting loading errors	(5.1.2.2)
3rd	Using disk directories	(5.1.3.1)
3rd	Using program menus	(5.1.3.2)
6th	Using multi-menu programs	(5.1.6.1)
7th	Selecting and evaluating software	(5.1.7.1)

5.2 Algorithms and logical sequencing

1st	Logical sequencing of procedures	(5.2.1.1)
	See 6.2.1.2	
4th	Logical sequencing of instructions	(5.2.4.1)

5.3 Logical operations

II	Elementary Boolean logic	(5.3.II.1)

5.4 Operating systems

BEST COPY AVAILABLE

6.0 PROGRAMMING

6.1 Programmable devices..

K	Programming a programmable device	(6.1.K.1)
K	Programming a sequence of procedures	(6.1.K.2)

6.2 Logo and turtle graphics

K	Programming turtle movements	(6.2.K.1)
K	Programming turtle graphic procedures	(6.2.K.2)
1st	Programming turtle graphic procedures	(6.2.1.1)
1st	Programming a sequence of procedures	(6.2.1.2)
2nd	Program testing and debugging	(6.2.2.1)
2nd	Using iteration in Logo procedures	(6.2.2.2)
2nd	Using variables in Logo procedures	(6.2.2.3)
2nd	Using recursion in Logo procedures	(6.2.2.4)
3rd	Problem solving in Logo	(6.2.3.1)
4th	Logical sequencing of instructions *See 5.2.4.1*	(6.2.4.1)

6.3 Common BASIC

4th	Level A:	System prompts	(6.3.4.1)
4th	Level A:	System commands	(6.3.4.2)
4th	Level A:	Programming statements	(6.3.4.3)
5th	Level B:	System commands	(6.3.5.1)
5th	Level B:	Programming statements	(6.3.5.2)
6th	Level C:	System commands	(6.3.6.1)
6th	Level C:	Programming statements	(6.3.6.2)
7th	Level D:	Programming statements	(6.3.7.1)
7th	Level D:	Problem-soving with BASIC *See 3.2.7.1*	(6.3.7.2)
8th	Level E:	Programming statements	(6.3.8.1)
8th	Level E:	Two-dimensional arrays	(6.3.8.2)
8th	Level E:	Using and, not	(6.3.8.3)
8th	Level E:	Using SQR and Exponential Notation	(6.3.8.4)
I	Level I:	Statements and commands (review)	(6.3.I.1)
II	Level II:	Logical implications of programming statements	(6.3.II.1)
II	Level II:	Advanced programming statements	(6.3.II.2)
II	Level II:	Boolean operations	(6.3.II.3)
II	Level II:	Programming style	(6.3.II.4)
II	Level II:	Programming algorithms	(6.3.II.5)
II	Level II:	Using sentinels	(6.3.II.6)
II	Level II:	Conditional branching	(6.3.II.7)
II	Level II:	Nested loops	(6.3.II.8)
II	Level II:	Supervisorial routines	(6.3.II.9)
II	Level II:	Subscripted variables	(6.3.II.10)
II	Level II:	String manipulations	(6.3.II.11)
II	Level II:	Using disk files	(6.3.II.1)

6.4 Structured BASIC

6.5 Pascal

BEST COPY AVAILABLE

6.6 COBOL

6.7 FORTRAN

6.8 LISP

6.9 RPG

6.10 Authoring programs and languages

8th Authoring programs (6.10.8.1)

6.11 Assembly language

6.12 Comparison of programming languages

III Differences between programming languages (6.12.III.1)

7.0 SOCIAL IMPLICATIONS OF THE COMPUTER

7.1 Impact on careers

4th Impact of computers on careers (7.1.4.1)
I Impact of computers on careers (7.1.I.1)

7.2 Impact on people and society

5th Impact of computers on society (7.2.5.1)
5th Moral and legal issues (7.2.5.2)
7th Impact of computers on society (7.2.7.1)

BEST COPY AVAILABLE

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY								TECHNICAL LITERACY							
		K	1	2	3	4	5	6	7 8	LEVEL I	LEVEL II	LEVEL III	K	1	2	3	4	5	6	7 8	LEVEL I	LEVEL II	LEVEL III
INDEX #																							
1.1	WHAT A COMPUTER DOES: COMPUTER FUNCTIONS AND CHARACTERISTICS	I	C	C	C	C	C	C															
1.4	COMPUTER VOCABULARY	I	C	C	C	C	C	C	C C														
2.1	KEYBOARDING SKILLS	I	C	C	C	C	C	C															
3.1	USES AND APPLICATIONS OF COMPUTERS: VARIOUS COMPUTING DEVICES	I	C	C	C	C	C	C	C C			M	C	C									
4.1	BASIC COMPUTER SYSTEM COMPONENTS	I	C	C	C	C	C	C	C C			M	C	C									
4.4	PREVENTIVE MAINTENANCE: CARE AND HANDLING OF COMPUTER HARDWARE AND SOFTWARE	I	C	C	C	C	C	C	C C														
5.1	USING PREPARED SOFTWARE: RUNNING COMPUTER PROGRAMS	I	C	M	M	C	C	M	M C	C C													
6.1	PROGRAMMING A PROGRAMMABLE DEVICE	I	C	C	C	C	C	C	C C														
6.2	PROGRAMMING: TURTLE MOVEMENTS AND GRAPHIC PROCEDURES	I	M	M	M	C	C	C															

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL I II III	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL I II III
INDEX # 1.3	HISTORY OF COMPUTERS: EARLY COMPUTING DEVICES	I	
3.2	PROBLEM SOLVING WITH COMPUTERS	I C C M C C M C C C C	M C C
6.2	PROGRAMMING: LOGO TURTLE GRAPHIC PROCEDURES	I M M C C C C C	M C C
6.2	PROGRAMMING: LOGICAL SEQUENCE OF PROCEDURES	I M M M C C C C	M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C C	

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8	USER LITERACY LEVEL I II III	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8	TECHNICAL LITERACY LEVEL I II III
2					
INDEX # 3.3	ADVANTAGES AND DISADVANTAGES OF COMPUTERS	I C C C C C C C			M C C
3.6	FAMILIARIZATION WITH WORD PROCESSING	I M C M C C C C			M C C
5.1	USING PREPARED SOFTWARE: USING MENUS WITHIN PROGRAMS	I C M M C C M M C C C			M C C
5.1	USING PREPARED SOFTWARE: CORRECTING LOADING ERRORS	I C M M C C M M C C C			M C C
6.2	PROGRAMMING: PROGRAM TESTING AND DEBUGGING	I C C C C C C			M C C
6.2	PROGRAMMING: USING ITERATION IN LOGO PROCEDURES	I C C C C C C			M C C
6.2	PROGRAMMING: USING VARIABLES IN LOGO PROCEDURES	I C C C C C C			M C C
6.2	PROGRAMMING: USING RECURSION IN LOGO PROCEDURES	I C C C C C C			M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C			

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY				TECHNICAL LITERACY			
		K 1 2	3 4 5	6 7 8	LEVEL I I I I I I	K 1 2	3 4 5	6 7 8	LEVEL I I I I I I
3									
INDEX # 1.4	COMPUTER TERMINOLOGY: COMPUTER TECHNICAL TERMS		I C C	C C C				M C C	
3.6	WORD PROCESSING: USES OF A WORD PROCESSOR		I	M C M	C C C C C C			M C C	
3.6	WORD PROCESSING: COMMAND KEYS		I	M C M	C C C C C C			M C C	
3.6	WORD PROCESSING: USING A WORD PROCESSOR		I	M C M	C C C C C C			M C C	
5.1	USING PREPARED SOFTWARE: USING DISK DIRECTORIES		I	M C C	M M C C C C			M C C	
5.1	USING PREPARED SOFTWARE: USING PROGRAM MENUS		I	M C C	M C C C C C			M C C	
6.2	PROGRAMMING: PROBLEM SOLVING IN LOGO			I C C	C C C			M C C	
2.1	*KEYBOARD SKILLS*		I C C	C C C	C C				

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SLOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I
4			
INDEX # 3.2	PROBLEM SOLVING STRATEGIES	I C C M C C M C C C	M C C
5.2	ALGORITHMS AND LOGICAL SEQUENCING: LOGICAL SEQUENCING OF PROCEDURES	I C C C C	M C C
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*		
6.3	PROGRAMMING IN BASIC: LEVEL A SYSTEM PROMPTS	I C C C C	M C C
6.3	PROGRAMMING IN BASIC: LEVEL A SYSTEM COMMANDS	I C C C C	M C C
6.3	PROGRAMMING IN BASIC: LEVEL A PROGRAMMING STATEMENTS	I C C C C	M C C
7.1	IMPACT OF COMPUTERS ON CAREERS	I M C C C M C C	M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C C	
3.6	*WORD PROCESSING*	I M C M C C C C C C	M C C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I
5			
INDEX # 1.3	HISTORY OF COMPUTERS	I C C C C C C	
7.2	WORD PROCESSING: SPECIALIZED COMMANDS	I M C M C C C C C C	M C C
3.7	DATA BASES & DATA MANAGEMENT	I M C M C C C	M C C
3.9	FUTURE USES OF COMPUTERS	I C C C C C C	M C C
4.2	MEMORY/STORAGE SYSTEMS	I C C C	M C C
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*		
6.3	PROGRAMMING IN BASIC: LEVEL B SYSTEM COMMANDS	I M M C C	M C C
6.3	PROGRAMMING IN BASIC: LEVEL B PROGRAMMING STATEMENTS	I M M M M	M C C
	FIFTH GRADE LEVEL CONTINUED ON NEXT PAGE		

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I
5 (continued)			
INDEX # 7.2	IMPACT OF COMPUTERS ON PEOPLE AND SOCIETY	I C M C C C C	M C C
7.2	MORAL AND LEGAL ISSUES	I C C C C C C	M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C	

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8	USER LITERACY LEVEL I II III	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8	TECHNICAL LITERACY LEVEL I II III
6			I II		I II
INDEX #					
1.2	HOW A COMPUTER WORKS: COMPUTER NUMBER SYSTEMS	I C C			M C C
3.5	COMPUTERS IN BUSINESS AND INDUSTRY: INDUSTRIAL APPLICATIONS OF COMPUTER-CONTROLLED DEVICES	I M C C C C			M C C
3.7	APPLYING DATA BASE MANAGEMENT	I M C M C C C			M C C
5.1	USING PREPARED SOFTWARE: USING MULTI-MENU PROGRAMS	I C M M C C M M C			
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*				
6.3	PROGRAMMING IN BASIC: LEVEL C SYSTEM COMMANDS	I M M C C			M C C
6.3	PROGRAMMING IN BASIC: LEVEL C PROGRAMMING STATEMENTS	I M M M M			M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C			
3.6	*WORD PROCESSING: APPLICATION*	I M C M C C C C C C			M C C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL III II I
7			
INDEX # 3.2	PROBLEM SOLVING APPLICATIONS	I C M M C C M C C C C	M C C
3.2	PROBLEM SOLVING THROUGH COMPUTER SIMULATIONS	I C M M C C M C C C C	M C C
3.5	COMPUTERS IN BUSINESS AND INDUSTRY: INDUSTRIAL APPLICATIONS OF COMPUTERS	I M C C C C	M C C
3.5	COMPUTERS IN BUSINESS AND INDUSTRY: REASONS FOR AUTOMATION	I M C C C C	M C C
3.8	NUMERICAL AND FINANCIAL MANAGEMENT	I C C	M C C
5.1	USING PREPARED SOFTWARE: SELECTING AND EVALUATING SOFTWARE	I C M M C C M M C	M C C
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*		
6.3	PROGRAMMING IN BASIC: LEVEL D PROGRAMMING STATEMENTS	I M M C C	M C C
	SEVENTH GRADE LEVEL CONTINUED ON NEXT PAGE		

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY LEVEL	TECHNICAL LITERACY LEVEL
		K 1 2 3 4 5 6 7 8 III II I	K 1 2 3 4 5 6 7 8 III II I
7 (continued)			
INDEX # 7.2	IMPACT OF COMPUTERS ON SOCIETY	I C M C C C C	M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C	
3.6	*WORD PROCESSING: APPLICATION*	I M C M C C C C C C	M C C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8	USER LITERACY LEVEL I II III	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8	TECHNICAL LITERACY LEVEL I II III
8					
INDEX # 6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*				
6.3	PROGRAMMING IN BASIC: LEVEL E PROGRAMMING STATEMENTS		I		M C C
6.3	PROGRAMMING IN BASIC: LEVEL E TWO-DIMENSIONAL ARRAYS		I		M C C
6.3	PROGRAMMING IN BASIC: LEVEL E USING AND, NOT		I		M C C
6.3	PROGRAMMING IN BASIC: LEVEL E USING SQR AND EXPONENTIAL NOTATION		I		M C C
6.10	AUTHORING PROGRAMS AND LANGUAGES: AUTHORING PROGRAMS		I		M C C
2.1	*KEYBOARDING SKILLS*	I C C C C C C C C			
3.6	*WORD PROCESSING: APPLICATION*	I M C M C C C C C C			M C C
3.7	*APPLYING DATA BASE MANAGEMENT*	I M C M C C C			M C C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY									TECHNICAL LITERACY								
		K	1	2	3	4	5	6	7	8	K	1	2	3	4	5	6	7	8
HIGH SCHOOL LEVEL I										LEVEL III II I									LEVEL III II I
INDEX #																			
3.5	COMPUTERS IN BUSINESS AND INDUSTRY: APPLICATIONS OF AUTOMATION																		I C C
4.5	SYSTEMS ANALYSIS AND CONFIGURATION: DIFFERENCES BETWEEN COMPUTERS																		I C C
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*																		
6.3	PROGRAMMING IN BASIC: LEVEL I: STATEMENTS AND COMMANDS (REVIEW)																		M C C
7.1	IMPACT OF COMPUTERS ON CAREERS				I	C		C	C	C	M	C	C						M C C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY K 1 2 3 4 5 6 7 8 LEVEL I II III	TECHNICAL LITERACY K 1 2 3 4 5 6 7 8 LEVEL I II III
HIGH SCHOOL LEVEL II			
INDEX # 4.5	SYSTEMS ANALYSIS AND CONFIGURATION: HARDWARE AND SOFTWARE		I C
5.3	LOGICAL OPERATIONS: ELEMENTARY BOOLEAN LOGIC		I C
6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*		
6.3	PROGRAMMING IN BASIC: LEVEL II LOGICAL IMPLICATIONS OF PROGRAMMING STATEMENTS		I C
6.3	PROGRAMMING IN BASIC: LEVEL II ADVANCED PROGRAMMING STATEMENTS		I C
6.3	PROGRAMMING IN BASIC: LEVEL II BOOLEAN OPERATIONS		I C
6.3	PROGRAMMING IN BASIC: LEVEL II PROGRAMMING STYLE		I C
6.3	PROGRAMMING IN BASIC: LEVEL II PROGRAMMING ALGORITHMS		I C
	LEVEL II CONTINUED ON NEXT PAGE		

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND R = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously, but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY									TECHNICAL LITERACY								
		K	1	2	3	4	5	6	7	8	K	1	2	3	4	5	6	7	8
HIGH SCHOOL LEVEL II *(continued)*																			
INDEX #																			
6.3	PROGRAMMING IN BASIC: LEVEL II USING SENTINELS																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II CONDITIONAL BRANCHING																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II NESTED LOOPS																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II SUPERVISORIAL ROUTINES																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II SUBSCRIPTED VARIABLES																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II STRING MANIPULATIONS																	I	C
6.3	PROGRAMMING IN BASIC: LEVEL II USING DISK FILES																	I	C

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

SCOPE AND SEQUENCE: EL DORADO COUNTY

SUGGESTED MINIMUM GR. LEVEL	TOPICS	USER LITERACY				TECHNICAL LITERACY			
		K 1 2	3 4 5	6 7 8	LEVEL III II I	K 1 2	3 4 5	6 7 8	LEVEL III II I
HIGH SCHOOL LEVEL III									
INDEX # 6.0	PROGRAMMING: ALTERNATE LANGUAGE(S) *(to be developed)*								
6.12	PROGRAMMING: COMPARISON OF PROGRAMMING LANGUAGES								I

I = INTRODUCE C = CONTINUE DEVELOPING/EXPAND M = MAJOR REINTRODUCTION

Topics listed in italics have been introduced previously but deserve major treatment at this level.

4/20/83

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.1.K.1	Student will describe three computer functions.	Student will describe a a computer as a learning tool, memory storage, and recreation device.	Students will interact with an educational program. Given a sequence of three numbers, students will repeat them to a class. Then demonstrate how a computer can perform the same activity. Student will play a game on a computer (e.g., arcade, instructional game) and discuss the experience.
1.1.K.2	Student will describe some basic characteristics of a computer as seen in a programmable device.	Student will identify basic computer functions found in a programmable device (e.g., permanent memory [ROM], temporary memory [RAM], ability to execute a programmed sequence of steps).	Have students play with a programmable device (e.g., Big Trak). Help them identify what Big Trak remembers even after the power is turned off, what it forgets when the power is turned off, that it can execute a series of steps over and over.

BEST COPY AVAILABLE

WHAT A COMPUTER IS — COMPUTER TERMINOLOGY — KINDERGARTEN

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.4.K.1	Student will understand beginning computer vocabulary.	Student will use beginning computer vocabulary appropriately.	List: cursor, computer, booting, software, menu, disk drive, diskette, printer, monitor, program, keyboard, hardware, space bar, return.

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — KINDERGARTEN

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.K.1	Student will use the computer keyboard.	Student will identify, locate, and use four special keys (return, delete, space bar, and shift).	Teacher prepares a wall chart of the keyboard. Specific keys to be taught are color coded, and the name of the specific keys are highlighted. Keys on the keyboard also are color coded (self-stick color dots). Teacher-prepared laminated diagrams of keyboard (same size as actual keyboard). With a copy in front of each student, teacher calls out specific keys to be touched.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.1.K.1	Student will be aware of computers in the world.	Student will describe other computers (toys, watches, appliances, etc.).	Students will identify various computing devices in school and at home (calculators, etc.). Gather pictures of a wide range of computers, both large and small, for class discussion. Make pictures into a montage for the bulletin board.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
4.1.K.1	Student will be familiar with parts of a computer, including peripheral devices.	Student will identify six components of a computer (i.e., disk drive, monitor, keyboard, etc.).	Take students on a "tour" of a computer. Use model computer (wooden) to disassemble and assemble various components.
		Student will identify components of computer hardware (i.e., central processing unit, disk drive, keyboard, monitor).	Student will name all hardware components correctly when shown a computer (or a picture of). Student will be given a demonstration of what each component can and will do. Student will be given a demonstration of a central processing unit loading information taken from a disk via the disk drive, and visually displayed on the monitor. If a printer is available, student will be given a demonstration of text material being transferred from the monitor to a printed copy via the printer. Student will describe what each component (disk drive, central processing unit, monitor, keyboard, and printer) can do.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
4.4.K.1	Student will know proper care of computer hardware.	Student will demonstrate proper care and handling of computer hardware.	Students will describe and discuss the various physical conditions that may damage the hardware components of a computer (i.e., the effects of spilling liquids on a computer, extreme temperatures, chalk dust, the effects of magnets, and the jarring of equipment). Students will demonstrate how to turn computer and monitor off and on.
4.4.K.2	Student will know proper care of computer software.	Student will demonstrate proper care of computer software.	Students will describe the various physical conditions that may damage the software (e.g., the effects of magnets, chalk dust, touching the disk surface). Students will demonstrate the proper handling, storage, loading and unloading procedure for software. Demonstrate ability to properly insert disk or tape and remove from drive.

BEST COPY AVAILABLE

COMPUTER OPERATIONS — USING PREPARED SOFTWARE — KINDERGARTEN

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.1.K.1	Student will know how to run prepared software.	Student will run prepared disk or cassette properly.	Student will turn computer on and off. Student will demonstrate correct care and handling of software. Student will load and autoload software. Student will start a program. Student will exit a program.

PROGRAMMING — PROGRAMMABLE DEVICES — KINDERGARTEN

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.1.K.1	Student will be exposed to turtle movements through using a programmable device.	Student will use fundamental turtle commands (e.g., forward, back, left and right).	Have students program a programmable device (e.g., Big Trak) to move forward, back, left and right.
6.1.K.2	Student will program a sequence of steps.	Student will demonstrate ability to program a sequence of turtle movements.	Have students walk through making a square and then program the device (e.g., Big Trak) to make the same pattern.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.2.K.1	Student will be exposed to turtle graphic movements.	Students will use fundamental turtle graphic commands on the computer (e.g., forward, back, left, right).	Teach basic commands (forward, back, left, right, home). Reinforce turtle movement by having students walk through procedures and by programming Big Trak or equivalent device.
6.2.K.2	Students will be exposed to programming turtle graphic procedures.	Students will demonstrate ability to program the turtle through a series of steps.	Have students make a square using turtle graphics after first walking through the procedure. Have students explore the length and width of screen using turtle graphics.

BEST COPY AVAILABLE

WHAT A COMPUTER IS — HISTORY OF COMPUTERS — FIRST GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.3.1.1	Student will be aware of early computing devices.	Student will describe several historical counting devices.	Have students tally items in the classroom or school yard. Have students describe the abacus. Have students build an abacus using buttons or macaroni and strings in a shoe box. Have students compare computers to early counting systems (stone, fingers).

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — FIRST GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.1.1	Student will use the computer keyboard.	Student will identify, locate and use a minimum of specified basic keys, run-stop, directional (cursor) and number keys.	Using laminated keyboard diagrams, students will touch keys indicated by teacher. Using grade-appropriate CAI software, students will be able to correctly input a designated numeral or letter. (Ex.: simple number or alphabet sequence program.)

BEST COPY AVAILABLE

COMPUTER APPLICATIONS — PROBLEM SOLVING — FIRST GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.2.1.1	Student will follow a procedure to solve problems using a computer.	Student will solve given problem using a computer.	Student and teacher will create a checklist (flow chart) for boot-up procedure. Student will use a checklist to solve teacher-created problem in boot-up procedure.

COMPUTER OPERATIONS — ALGORITHMS AND LOGICAL SEQUENCING — FIRST GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.2.1.1	Logical sequencing of procedures.	*See 6.2.1.2, Programming a sequence of procedures.*	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.2.1.1	Students will increase their programming skills by writing procedures.	Students will define and edit turtle graphic procedures.	Have students map out a program on a grid and then enter the program into the computer. Have students run and edit the procedures above once they are in the computer.
6.2.1.2	Student will understand logical order of procedures.	Student will create a program that demonstrates a logical sequence of procedures.	Have students make a design that requires several movements of the turtle with pen up and pen down commands.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.2.1	Student will be able to use the computer keyboard.	Student will demonstrate correct keyboarding skills for home keys, and four to six additional keys.	Using individual laminated keyboard diagrams, students will properly place fingers on home keys of keyboard (ASDF JKL;), and will practice pushing individual keys as called out by teacher. Repeat activity above using keyboard on computer. Using individual laminated keyboard diagrams, have students properly place fingers on home keys, fingering G, H, and SHIFT and SPACE BAR and additional home line keys. Repeat activity above using keyboard on computer.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.3.2.1	Student will become aware of the advantages of a computer.	Students will explain at least five ways a computer can assist them in their daily activities.	Demonstrate how a computer can be used to quickly store and retrieve information (facts, figures, and graphics material). Demonstrate how computer software, disks and cassettes can store great quantities of text material in a relatively small space. (You might want to compare a textbook to a disk or cassette containing approximately the same amount of information.) Demonstrate how a computer can quickly perform various functions (e.g., addition, subtraction, counting). Demonstrate how a computer can be used to create and control the formation of graphic displays (i.e., turtle graphics). Discuss the versatility of a computer (e.g., 24-hour banking facilities, burglar alarms, heating systems, telephone systems, inventory control, personal finance management).

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.3.2.1 *(continued)*		Students will explain at least five ways a computer can assist them in their daily activities.	Demonstrate the audio capabilities of some computer models. Demonstrate the ease and speed with which text material may be produced, edited, managed, stored, and reproduced via a printer. Demonstrate the "portability" and ease of set-up and take-down of a microcomputer. Demonstrate the "expandability" of a microcomputer system; that is, the system can be constantly added to, memory can be increased, disk drives may be added, MODEMS can be used, and column configurations can be expanded.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS — ADVANTAGES AND DISADVANTAGES OF COMPUTERS — SECOND GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.3.2.2	Student will become aware of the disadvantages of a computer.	Student will explain at least three disadvantages of a computer.	Discuss limited "accessibility" due to the cost factor. Discuss the need for a power source -- no electricity, no computer. Discuss security problems associated with a computer (portability). Discuss the effects of the computer on social development. Discuss the problems caused with a "breakdown" (e.g., cost of repair, down-time, disruption of educational process). Discuss the lack of subjectivity of the computer (non-emotional when dealing with people).

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	WORD PROCESSING	SECOND GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.2.1	Students will be aware of the uses of word processing.	Students will identify basic uses of a word processor.	Enter a student's story into the computer using a word processing program. Have the student dictate corrections to be made on the monitor, by the teacher, followed by a printout.

COMPUTER OPERATIONS	USING PREPARED SOFTWARE	SECOND GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.1.2.1	Student will become aware of in-program menus.	Student will use a menu to select options in software programs.	Students will load a program and call up each option using an escape technique.
5.1.2.2	Student will recognize simple loading errors.	Student will rectify a simple loading error.	Show how to restart and reload a program.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.2.2.1	Student will recognize simple programming errors.	Student will correct simple programming errors.	Show students how to debug their turtle graphic programs. Have students explain how they expect the procedure to flow before it is run. Have students write and debug simple programs.
6.2.2.2	Students will increase programming skills by adding iteration to procedures.	Students will use iteration in Logo procedures they write.	Show students how repeat commands work. Have them program a square, circle, triangle and pentagon using the repeat instruction. Develop designs that wrap around the screen to create various designs.
6.2.2.3	Students will increase programming skills by adding variables to procedures.	Students will use variables in Logo procedures they write.	Show students how to use variables in their Logo procedures. Have them program a square, triangle, etc. using variable sizes.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.2.2.4	Students will increase programming skills by using recursion.	Students will demonstrate the use of recursion in their Logo procedures.	Have student write a procedure that calls itself as the final line. Ex.: TO SQUARE :SIZE FORWARD :SIZE RIGHT 90 SQUARE :SIZE END

BEST COPY AVAILABLE

WHAT A COMPUTER IS — COMPUTER TERMINOLOGY — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.4.3.1	Student will use, recognize and understand computer technical terms.	Student will define and spell specified computer terms (i.e., bit, chip).	Student will match terms to appropriate definitions. Develop a glossary of computer terms.
		Student will use a minimum of twenty terms when communicating about computers.	Be able to identify or demonstrate terms on computer.

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.3.1	Student will be able to use the computer keyboard.	Student will demonstrate correct finger placement for upper and lower case keys.	Use a CAI typing instructional program (e.g., Typing Tutor, Hi-Res Mastertype). Seek competency at a minimum of 15 words per minute without error. Identify and use special keys on keyboard (i.e., escape, return, delete).
		Student will locate and use a minimum of sixteen basic keys with correct finger placement.	Student will use correct keys to edit program and text. Student will be able to type and edit a short passage.

(continued on next page)

BEST COPY AVAILABLE

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.3.1	*(continued)*	Student will develop correct keyboarding skills for upper and lower auxiliary line keys. (Some modification may be necessary pending student's hand size.)	Using individual laminated keyboard diagrams, students will practice fingering upper auxiliary line keys (QWERT/ YUIOP) as dictated by teacher. Using computer keyboard, students will practice fingering home line and upper auxiliary line keys, as dictated by teacher. Repeat activities above for lower auxiliary keys (ZXCVB/ NM,.?). Using prepared CAI typing programs, students will develop accuracy when using complete keyboard.

COMPUTER APPLICATIONS — PROBLEM SOLVING — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.2.3.1	Problem solving strategies	*See 6.2.3.1, Problem solving in Logo.*	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.3.1	Student will identify uses of a word processor.	Student will identify how word processing can be used to prepare reports and original stories.	Discuss different uses.
3.6.3.2	Student will have experience using a word processor.	Students will enter text using a word processor.	Have students enter original text using a word processor. Editing student's story; when story is in word processor, student will edit story alone or with help of the teacher.
3.6.3.3	Students will be introduced to specialized word processing command keys.	Students will describe a minimum of three word processing commands.	Teacher will demonstrate use of a minimum of three word processing commands (e.g., new line, upper/lower case, tab). Students will memorize and explain the keyboard combinations needed to execute a minimum of three word processing commands.

BEST COPY AVAILABLE

COMPUTER OPERATIONS — USING PREPARED SOFTWARE — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.1.3.1	Student will be aware of directory functions.	Student will select various programs using disk directory.	Student will use directory command (e.g., menu, catalog) to observe list of programs on disk. Students will select and load a program listed on the directory.
5.1.3.2	Student will become aware of program menu.	Student will use options in software program menus.	Student will load a program and call up each option using the appropriate technique.

PROGRAMMING — LOGO AND TURTLE GRAPHICS — THIRD GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.2.3.1	Student will develop problem solving and logic strategies.	Using Logo, student will solve problems in various curriculum areas.	Student will develop and debug program using sequential graphic displays. Student will demonstrate use of estimation to solve problems with Logo.

BEST COPY AVAILABLE

KEYBOARDING SKILLS | KEYBOARD EXPERIENCE | FOURTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.4.1	Student will improve his/her touch-typing skills.	Student will demonstrate ability to use home keys from memory.	Use CAI software (e.g., MECC Typing Tutor, MasterType) to practice skills. From teacher dictation, students will type using home keys (from memory) with 80% accuracy.
		Student will use proper finger placement for all alphabet keys.	Continue use of CAI software. Students may bring typewriters to school for practice. Type in teacher-dictated text, using correct hand position and technique. Explain the function of the special use keys (control key, reset, escape, return, etc.). Students will use appropriate keys to edit programs and text.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	PROBLEM SOLVING	FOURTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.2.4.1	Students will search for the easiest way to solve problems.	Students will identify the appropriate devices to solve various problems on an assortment of devices.	Students will work in groups attempting to find the recommended device to perform various functions as listed by the teacher (e.g., calculations, learn math facts, location of "marks' football," play video games, etc.). Students prepare a list of recommended devices for solving various problem types.

COMPUTER APPLICATIONS	WORD PROCESSING	FOURTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.4.1	Students will have hands-on experience with word processing.	Students will use word processing to prepare reports and original stories.	Student will enter original text using minimum basic commands (new line, upper/lower case letters, tab, etc.) in writing their own short stories. Students will use print command to print out reports and stories.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.2.4.1	The student will understand that a program can be broken into a series of ordered steps.	The student will list a series of instructions for a simple act.	The student will write complete directions for making a peanut butter and jelly sandwich. Students will exchange directions and follow them literally. The student will write a simple program in turtle graphics/Logo. Write a flow chart to represent a solution to a simple task. Explain how a program will flow before it is run (turtle graphics).

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.4.1	Students will recognize SYSTEM PROMPTS.	Students will identify the READY PROMPT SYMBOLS that are given by the computer. (These will vary by computer.)	Turn on the computer and write on a sheet of paper the word (SYSTEM PROMPT) that appears on the screen. Given a list of different SYSTEM PROMPTS, pick the ones that your computer uses and orally explain what they mean.
		Students will identify and respond correctly to the ERROR PROMPT SYMBOLS given by the computer. (These will vary by computer.)	After READY appears on the video monitor, type your name and press the RETURN or ENTER key, whichever your computer has. Write on a piece of paper the words that now appear on the video monitor.
6.3.4.2	Students will recognize, understand and use SYSTEM COMMANDS in BASIC.	Students will identify and properly use NEW, LOAD, RUN LIST, and RETURN/ENTER commands. (These may vary by computer.) (Note: R/E will be used to indicate the RETURN/ENTER key.)	Type the following: 10 PRINT "HELLO!" (R/E) 20 END (R/E) RUN (R/E) Write on a piece of paper what the computer shows on the video monitor. Now type the following: LIST (R/E) Explain what the computer did. After completing the activity above, type the following: NEW (R/E) RUN (R/E) Explain what these COMMANDS have made the computer do.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.4.2 *(continued)*			Insert a diskette into the disk drive (or a cassette in the cassette player if so equipped). Type the following: LOAD (R/E) (or CLOAD for cassette) What does the computer tell you to do? Carefully follow the instructions given by the computer. Explain what has happened. Now type the following: RUN (R/E)
6.3.4.3	Students will understand the applications of PROGRAMMING STATEMENTS in BASIC.	Students will successfully use PRINT statements with the use of quotation marks (") to display a given set of characters on the video display of a microcomputer.	Type the following: PRINT I LOVE YOU (R/E) What does the computer show on the monitor? Now you should type the following: PRINT "I LOVE COMPUTERS" (R/E) What does the computer now show on the video monitor? Explain what you did differently that caused a change in the computer's output.
		Students will successfully use PRINT statements with the addition (+), subtraction (-), multiplication (*) and division (/) operations to solve a given set of problems.	

BEST COPY AVAILABLE

SOCIAL IMPLICATIONS OF THE COMPUTER — IMPACT ON CAREERS — FOURTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
7.1.4.1	The student will become aware of the uses of computers in various careers.	The student will list and describe careers that make use of computer technology.	Students will take a field trip to Blue Shield in Placerville or other local business using computers. Outside speakers: P.G. & E., Pacific Telephone, Michigan Cal, Marshall Hospital, etc. Field trip to Hewlett-Packard in Roseville. Intellivision. List values of computer skills for future employment.

BEST COPY AVAILABLE

WHAT A COMPUTER IS — HISTORY OF COMPUTERS — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.3.5.1	The student will understand the transition from mechanical to electronic computing devices.	The student will trace the history of computers.	List the characteristics of each generation of computers (tubes, transistors, micro-processors, mechanical switches, etc.). Use film or filmstrip to study history of computers.

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.5.1	Students will use touch-typing skills tc properly complete assignments.	Students will complete a given number of assignments, demonstrating proper use of keyboarding skills.	Write a letter using proper keyboarding skills. Write a book report using proper keyboarding skills. Write a paragraph using proper keyboarding skills (double spaced, with appropriate margins).

BEST COPY AVAILABLE

COMPUTER APPLICATIONS — WORD PROCESSING — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.5.1	Students will have hands-on experience with word processing.	Students will use at least four new specialized commands.	Teacher will demonstrate the use of a minimum of five new word processing commands (i.e., delete complete line, insert complete line, set and change margins, load a program from disk to computer, save a program). Students will memorize and explain the key combinations for a minimum of five new commands. Students will have hands-on experience using and developing competencies with above commands.

COMPUTER APPLICATIONS — DATA BASES AND DATA MANAGEMENT — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.7.5.1	The student will have an understanding of information storage systems.	The student will use a data base management system to file and retrieve information.	Students create a simple sample form (skeleton frame) using a data base management system. Students fill in simple sample form with name, address, etc.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS — FUTURE USES OF COMPUTERS — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.9.5.1	The student will understand the possibilities of the computer in the future.	The student will infer potential future applications of computers.	View "2001 Space Odyssey" and discuss. Brainstorm ideas for possible inventions and computer uses. Show film "Future Shock" and discuss. Read appropriate chapters from The Third Wave and discuss the electronic cottage concept.

COMPUTER SYSTEM COMPONENTS — MEMORY/STORAGE SYSTEMS — FIFTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
4.2.5.1	The student will understand the way in which storage and retrieval of information occurs.	The student will correctly use external memory devices (disks, cassettes, etc.).	Compare and discuss storage devices such as disks, cassettes, human mind, and books. Practice loading, saving and verifying programs. Use correct procedures to restart a program. Explain simple error messages (I/O Error, Syntax Error, File Not Found, etc.).

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.5.1	Students will understand the applications of SYSTEM COMMANDS in BASIC.	Students will demonstrate the correct use of SYSTEM COMMANDS including cursor movement, INSERT/DELETE functions, HOME, and the CLEAR SCREEN command. (These may vary by computer.)	
6.3.5.2	Students will understand the applications of PROGRAMMING STATEMENTS in BASIC.	Students will successfully edit a given program by inserting additional lines, deleting unwanted lines, inserting GOTO statements, and properly using the END command.	
		Students will successfully solve problems using the PRINT command in conjunction with the comma (,) and the semicolon (;).	
		Students will successfully solve a given problem by writing and running a program using the LET command.	
		Students will successfully solve a given problem by writing and running a program using numeric variables.	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
7.2.5.1	The student will recognize that computers have an effect on society and the individual.	The student will identify ways computers can and have had a positive and negative impact on society.	Students bring in several items to demonstrate the efficiency of computers in daily life, such as: zebra codes on labels, utility bills, register receipts, fast-food orders, etc. To demonstrate negative impact, discuss invasion of privacy and depersonalization. Identify common tasks that are not suited for computers. Explain the statement, "Computer mistakes are made by people."
7.2.5.2	Students will understand the ethical and legal responsibilities regarding software.	Student will demonstrate respect for software copyrights.	Discuss the rights and responsibilities of computer users and programmers. Use role-playing situations to generate discussion on privacy (programmer vs. thief). Read and discuss the implications of copyright law as related to computer programs. Discussion of the potential abuse/invasion of privacy.

BEST COPY AVAILABLE

WHAT A COMPUTER IS — HOW A COMPUTER WORKS — SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
1.2.6.1	The student will be introduced to the binary numbers system used in computers.	The student will count in base 2 through the number ten (10).	Have four students demonstrate off/on signals to show binary place value (stand/sit=off/on) by counting in base 2 from one to ten or higher. Use reference Computer Tutor for binary number activities.

KEYBOARDING SKILLS — KEYBOARD EXPERIENCE — SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.6.1	Students will use touch-typing to properly complete assignments.	Students will complete a given number of assignments demonstrating proper use of keyboarding skills.	Students will write at least two creative stories using proper keyboarding, spacing, and punctuation. Students will accurately copy a short poem, or paragraph from a given printed text, using correct keyboarding.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	COMPUTERS IN BUSINESS AND INDUSTRY	SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.5.6.1	The students will understand industrial applications of computer controlled devices.	The student will identify several ways in which computers are used in industry.	Field trip to Michigan Cal, Mountain Democrat, and/or Dimetrics plant. Have students research field for examples (prosthetics, auto industry, etc.).

COMPUTER APPLICATIONS	WORD PROCESSING	SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.6.1	Students will continue hands-on experience with word processing.	Students will use word processing incorporating new skills to prepare reports and original stories.	Students will enter new text and edit, demonstrating use of at least eight word processing commands learned in previous grades. Students will enter and edit a formal letter, using word processing commands.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	DATA BASES AND DATA MANAGEMENT	SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.7.6.1	The student will have an understanding of information retrieval systems.	The student will use a data base management system to file and retrieve information.	Define the term "data base" and its use in various careers. Differentiate between a data base and a word processing system and give examples of each. Discuss possibilities for students to use a data base management program for social studies research.

COMPUTER OPERATIONS	USING PREPARED SOFTWARE	SIXTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.1.6.1	Student will use multi-menus within a program.	Students will be proficient in selecting, exiting, and relocating menus within a menu-type program (e.g., Magic Window).	Student will demonstrate the ability to use software containing multi-menus such as word processing programs.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.6.1	Students will understand and use SYSTEM COMMANDS in BASIC.	Students will successfully use the disk operating system (DOS) and SAVE commands.	
		Students will successfully SAVE a program they have written. (This may be done either on cassette or disk, whichever is available).	
6.3.6.2	Students will understand and use PROGRAMMING STATEMENTS in BASIC.	Students will successfully DIMENSION and use STRING VARIABLES in order to put words in output text.	
		Students will successfully insert a FOR...NEXT loop in a program to create a time delay for a given period of time.	
		Students will successfully write and run a program using a FOR...NEXT command in which a series of data inputs are required.	

(continued on next page)

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.6.2	*(continued)*	Students will successfully write and run a program that requires inputing a value for a variable, uses a series of IF...THEN statements and makes the computer give a response that incorporates an inequality.	
		Students will successfully write and run a program that requires the use of the REM (remark) statement.	
		Students will successfully write and run a program that requires the use of the POKE command.	
		Students will successfully write and run a program that requires the use of the RND (random number generator) and INT (integer) functions.	
		To solve a given problem, students will write and run a program incorporating the colon (:) in order to give multiple instructions on one line.	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
2.1.7.1	Students will use total keyboard (including graphics when available).	Students will type a given text using both standard keys and auxiliary graphics keys (if available).	Students complete prepared assignments using standard text and computer graphics. Students create a written program including both standard text and computer graphics.
2.1.7.2	Students will increase speed and accuracy in touch-typing.	Students will use touch-typing skills.	Use CAI touch-typing programs.

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.2.7.1	Student will use the computer to solve a problem.	Given a situation problem, the student will use the computer to solve it.	Student will take a survey (most popular songs, etc.) and develop a program to find the most popular response. Work out problem first with paper and pencil, then develop a program to do the work. Student will develop a program to determine if a number is prime. Student will develop a program that will identify the larger of any two numbers which the student enters into the computer. Student will develop a program that will calculate the total amount saved if amount of money is saved each week until they graduate from eighth grade. Add interest to the above. Given the velocity and altitude of an orbiting object, student will develop a program to calculate the time of orbit. Expand program one variable at a time to allow the input of velocity and altitude.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.2.7.2	The student will be able to use commercially produced simulation programs, adventure programs, etc. to develop logic and decision-making skills.	Students will successfully solve problems presented in simulation programs.	Student will select a program (e.g., Oregon Trail, Failsafe) and play it to conclusion. Student will evaluate his/her performance by mapping, charting, and tallying his/her responses to increase accuracy. The student will use these recorded responses to bring a successful conclusion to the simulation.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.5.7.1	The student will understand business and industrial applications of computers.	After visiting local businesses using computers, students will identify their specific computer applications.	Field trips to local computer-using businesses. Collect items from newspapers, etc., that relate to business applications of computers. Get speakers from industry to talk about their businesses and their computers. Make a list of things you would like to have a computer do for you.
		Students will identify specific uses of computers in industry.	Students will list ten specific applications of industrial automation. Students will communicate with these industries to obtain first hand information. Write an essay on jobs a computer can do more efficiently than a human.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	COMPUTERS IN BUSINESS AND INDUSTRY	SEVENTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.5.7.2	Students will have knowledge of background of automation.	Students will list reasons for the evolution of automation.	Develop a rationale for saving time. Ask local computerized business why they have a computer and write a report. Debate whether to encourage or prevent automation. Make a list of things you would like to have done by a machine. Research inventions in automation.

COMPUTER APPLICATIONS	WORD PROCESSING	SEVENTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.7.1	Student will apply word processing in a variety of courses.	Student will properly write and edit a given assignment using the word processor.	Students will use word processing (text and some symbols), to complete assignments for a variety of courses.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS — NUMERICAL AND FINANCIAL MANAGEMENT — SEVENTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.8.7.1	Students will display competency in finding and recording information in a program.	Student will use a data spread sheet program (e.g., VisiCalc) to record personal information.	Student will record grades and use computer for averaging. Student will keep Student Council, sports, and other records on a computer.

COMPUTER OPERATIONS — USING PREPARED SOFTWARE — SEVENTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.1.7.1	Students will select and review computer software relative to a chosen topic.	Student will demonstrate evaluation skills in software reviews.	Students will scan catalogs to find software on their topic which is available for review. Students will send for chosen programs with teacher's approval. Students wil develop evaluation criteria (visual, easy-to-follow, grade level, etc.) to compare programs. Students will return programs not purchased before the deadline.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.7.1	Students will understand and be able to use PROGRAMMING STATEMENTS in BASIC.	Students will successfully write and run one program using the DIM (dimension), READ, DATA, and RESTORE statements to solve a given problem.	Refer to "Rainbow Basic" for specific ideas.
		Students will successfully write and run one program using the GOSUB (go to subroutine) and RETURN statements to solve a given problem.	
		Students will successfully write and run one program using the ABS (absolute value) and SIN (sine function) statements to solve a given problem.	
		Students will successfully modify a given program (in BASIC) in order to solve a given problem.	
6.3.7.2	Problem solving applications	*(See 3.2.7.1)*	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
7.2.7.1	Students will be aware of effects of computers on their lives and society.	Students will demonstrate an awareness of the effects of computers on their lives and society.	Students will debate the pros and cons of computers in society. Write an essay on the disadvantages of not having a computer. Discuss and fantasize about the possiblities of instant democracy via the computer.

BEST COPY AVAILABLE

COMPUTER APPLICATIONS	WORD PROCESSING	EIGHTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.6.8.1	Students will demonstrate an understanding of the uses of a word processor.	Students will accurately apply word processing in assignments in a variety of courses.	Students will use word processing (text and symbols) to complete assignments that may include charts, graphs, mathematical symbols, etc.

COMPUTER APPLICATIONS	DATA BASES AND DATA MANAGEMENT	EIGHTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.7.8.1	The student will be able to use the data base and management capabilities of a computer.	The student will develop his/her own data base to manage selected information.	Student will develop a management system to record his/her grades for each subject area. Student will record his/her grades for each class over an extended period of time. Student will weekly review his/her grades and average them. Student will chart his/her performance weekly in each class.

BEST COPY AVAILABLE

PROGRAMMING — COMMON BASIC — EIGHTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.8.1	Students will understand and be able to use PROGRAMMING STATEMENTS in BASIC.	The student will write a program using the PEEK statement.	The student is to determine the value stored at a given memory location.
6.3.8.2	Students will understand the use of two dimensional arrays.	The student will write and run a routine using two dimensional arrays.	The student will write a program that stores baseball scores in two dimensional arrays and prints out win/loss percentages.
6.3.8.3	Students will understand the use of AND, NOT.	The student will write and use a routine using AND, NOT.	
6.3.8.4	Students will understand the use of SQR (square root) and Exponential Notation ( ).	The student will write and use a routine using SQR and Exponential Notation.	

PROGRAMMING — AUTHORING PROGRAMS AND LANGUAGES — EIGHTH GRADE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.10.8.1	Students will understand the use of and be able to use authoring programs.	Given an AUTHORING PROGRAM, students will load, run and input their own original data in order to create a crossword puzzle, word find, maze or other output.	

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
3.5.I.1	Students will gain experience in the field of computer automation.	Students will identify applications of automation in industry.	Students will be provided an opportunity to visit and view industries in their area that have introduced automation. Through an ROP-type program, interested students will be able to gain hands-on experience in local automated industry. Students will select an industry that is automated or is in the process of automating, research it in terms of present and future applications of automation, and share their findings with the class.

BEST COPY AVAILABLE

COMPUTER SYSTEM COMPONENTS	SYSTEMS ANALYSIS AND CONFIGURATION	HIGH SCHOOL LEVEL I

INDEX #	GOAL	OBJECTIVE	ACTIVITY
4.3.I.1	Students will become familiar with various major microcomputers.	Student will identify three unique features related to each microcomputer.	Locate microprocessor unit in available microcomputers (if possible). Identify the compatible components for each available computer system. Given compatible software, demonstrate the procedures for booting available systems. Explain and demonstrate the different function keys on available microcomputers.

PROGRAMMING	COMMON BASIC	HIGH SCHOOL LEVEL I

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.I.1	Students will review BASIC statements and commands.	Students will write and execute routines using all previously presented statements and commands.	Complete EDUHSD computer workbook.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
7.1.I.1	Student will recognize the impact the computer has had on the present and will have on future employment trends and employment opportunities.	The student will identify ways that computers will affect his/her ultimate place in the world of work.	The student will use this information as a counseling tool and as an aid in making educational decisions leading ultimately to his/her place in the world of work. Students will identify five job skills that have either been eliminated or drastically altered by the introduction of computer technology. Students will identify five job skills that have been generated by the introduction of computer technology. Students will select an occupation that interests them and research, predict, and evaluate possible impact the introduction of computer technology will have on it in the next ten years. (Ex: How the job will change, what will the educational requirements be, what will the demand for this type of skill be, job security, salary, etc.) Students will submit their findings in writing for evaluation. Students will share their findings with other members of the class.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
4.5.II.1	Students will analyze hardware systems and applications.	Students will select the proper computer hardware to efficiently solve a given problem.	Read and explain the terms in the hardware manuals and specification sheets for computer components. Explain the differences between similar components. Read and explain magazine articles on new equipment and applications of that equipment.
4.5.II.2	Students will analyze software and applications.	Students will select the proper computer software to efficiently solve a given problem.	Read and explain the terms in the software manuals and specification sheets. Explain the differences between similar software programs. Read and explain magazine articles on new software and applications of that software. Develop flow charts to solve a given problem.

BEST COPY AVAILABLE

COMPUTER OPERATIONS — LOGICAL OPERATIONS — HIGH SCHOOL LEVEL II

INDEX #	GOAL	OBJECTIVE	ACTIVITY
5.3.II.1	Student will understand elementary Boolean logic.	Students will write English and algebraic sentences using AND, NOT, OR.	

PROGRAMMING — COMMON BASIC — HIGH SCHOOL LEVEL II

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.II.1	Students will understand the logical implications of BASIC programming statements.	Students will design, code and execute a specific pseudo-code program.	Have students write statements in English describing the steps (instructions) that would be used by a computer program (e.g., the program asks for two numbers, asks them to be added, checks and prints the answer).
6.3.II.2	Students will understand advanced programming statements.	Students will design, code and execute routines using SYS/USR, ON...GOTO, ON...GOSUB, DFN A(X), pseudo-code program.	Design a program that will count to 25 by adding one and then goto beginning, thus creating a loop.
6.3.II.3	Students will understand Boolean operations.	Students will design, code and execute routines using AND, NOT, OR logical statements.	Design, code and execute a routine using all three operators with a minimum of sixteen (16) branches.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.II.4	Students will display proper programming style.	Students will design, code and execute routines having good readability, logical structure and documentation.	The Little Book of BASIC Style, John M. Nevison, Addison-Wesley, 1978 may be used for all the following activities.
6.3.II.5	Students will understand SORTS and other algorithms.	Students will design, code and execute routines using sorts.	
6.3.II.6	Students will understand and use "sentinels".	Students will design, code and execute routines using sentinels that terminate the routine using sorts.	
6.3.II.7	Students will understand and use conditional branching.	Students will design, code and execute routines that use conditional branching giving four different options.	
6.3.II.8	Students will understand and use nested loops.	Students will design, code and execute a routine that uses 3 nested loops.	Design, code and execute a program that prints all possible combinations of three letters.

BEST COPY AVAILABLE

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.3.II.9	Students will understand subroutines/structure, supervisorial routines.	Students will design, code and execute a program that uses a supervisorial routine to manage at least 3 subroutines using proper structure.	
6.3.II.10	Students will understand subscripted variables.	Students will design, code and execute routines using subscripted variables with a one-dimensional array.	
6.3.II.11	Students will understand string manipulations.	Students will design, code and execute routines using string manipulations.	
6.3.II.12	Students will understand use of disk files in BASIC.	Students will design, code and execute a routine that stores and allows retrieval of user input data.	

BEST COPY AVAILABLE

PROGRAMMING — COMPARISON OF PROGRAMMING LANGUAGES — HIGH SCHOOL LEVEL III

INDEX #	GOAL	OBJECTIVE	ACTIVITY
6.12.III.1	Students will understand differences between computer programming languages.	Students will identify the particular language in which a program is written.	Write programs in BASIC and PILOT that will count even numbers up to 10.

BEST COPY AVAILABLE

SURVIVAL GUIDE TO COMPUTER TERMINOLOGY

ASCII: (pronounced "as-key") An acronym for American Standard Code for Information Interchange. ASCII is a coding standard used with 8-bit microprocessors. With all microcomputers that use ASCII, 01000001 equals the letter "A", 00110010 the number "2", 00101011 the "+" sign, etc. See *byte*.

author language: A computer language designed to allow teachers to write computer-assisted instruction programs easily and without much programming experience. See *PILOT*.

backup: An extra copy of software, normally kept on file in case the original program is damaged or lost.

BASIC: Beginner's All-purpose Symbolic Instruction Code. The programming language most commonly used on microcomputers.

binary number system: A number system using 1s and 0s to represent all numbers. Computers use binary numbers to store and manipulate information. A "1" means that the electrical current at that moment is high; a "0" means that the current is low.

bit: A short way of saying "binary digit." A bit is either a 1 or a 0. Taken together, a number of bits are used to represent data inside a computer. See *byte*.

boot: Short for "bootstrap" or "pulling oneself by his/her bootstraps." This refers to loading a piece of software that activates other pieces of software in order to bring the system into readiness for use. See *DOS*.

byte: A sequence of bits that represents a single character. In most microcomputers, eight bits make up one byte. See *ASCII*.

CAI: Computer-Assisted Instruction.

character: A letter, digit, or other symbol that is used to represent data. All symbols that appear on a computer keyboard are characters. A space also is a character.

chip: A common name for a small, flat piece of silicon upon which electronic circuits are etched.

command: A word or character that causes a computer to do something.

computer program: A series of commands, instructions, or statements put together in a way that tells a computer to do a specific thing or series of things. See *software*.

CPU: Central Processing Unit. The "brains" of the computer. The CPU interprets instructions and carries them out.

cursor: A position indicator on the screen. It frequently is a flashing or nonflashing square or rectangle.

data: A general term meaning any and all information, facts, numbers, letters and symbols that can be acted on or produced by a computer.

debug: To go through a computer program to remove mistakes.

disk (sometimes spelled "disc"): Short for "diskette." A round piece of magnetic-coated material used to store computer programs and data.

disk drive: A device that reads and records data on disks or diskettes.

documentation: The instruction sheet or manual for a piece of hardware or software.

DOS: Disk Operating System. On Apple II and some other microcomputers, a special software program that controls all disk-related activities. You must "boot DOS" before you can run, load or save programs on the disk.

hardware: The physical (mechanical and circuitry) parts of the computer (e.g., the CPU, chips, keyboard, disk drive) as opposed to software. See *software*.

input: Information entered into the computer, usually from the keyboard. Data also may be input from devices such as game paddles or a light pen.

integrated circuit: A complete electrical circuit on a single chip.

interface: A piece of hardware or software used to connect two devices (computers and peripherals) that otherwise cannot be used directly together (e.g., an interface between the computer and a disk drive).

language: A set of words and other symbols used to give instructions to a computer (e.g., BASIC, FORTRAN, Logo).

load: To put data and/or programs into a computer from a disk or cassette tape. Also see *boot*.

Logo: A computer language developed at M.I.T. under the guidance of Seymour Papert. Logo allows the user to create a set of commands that "teaches" the computer new capabilities.

machine language: A computer language composed of binary numbers (1s and 0s). Machine language is the only language that the computer directly understands. Each type of computer has its own machine language. Also see *bit* and *byte*.

memory: Circuitry and devices that hold the binary 1s and 0s the computer can access. Examples are main memory (particularly RAM and ROM), floppy disks, and cassette tape.

microcomputer: A computer that has a single microprocessor as its main central processing unit. See *CPU*.

microprocessor: The central processing unit of a computer (usually in a single integrated circuit) that holds all the elements for manipulating data and performing arithmetic calculations.

modem: A device that allows a computer to talk to another computer over telephone lines. Because most microcomputers use ASCII code as a standard way to represent characters, different brands of microcomputers can talk to each other through modems. Short for modulator/demodulator.

output: Information or results that are generated by a computer while running a program and sent by the CPU to a peripheral device.

peripheral: Equipment that is external to the computer itself. The most common peripherals used with microcomputers are disk drives, printers, and cassette tape recorders.

PILOT: Programmed Inquiry Learning or Teaching. A computer language designed to allow teachers to develop CAI programs easily.

program: (1) *(noun)* A list of instructions that tells a computer what to do and how to do it. See *software*.
(2) *(verb)* To prepare the list of instructions.

RAM: Random-access memory. The main type of memory used in a microcomputer. The computer can find a piece of information in RAM in about the same time no matter where it is stored.

RAM chips: Chips called "RAM" in a microcomputer are random-access memory chips in which all data is lost when the power is turned off. See *RAM*.

ROM chips: Read-only memory chips. These chips are random-access memory chips in which information is stored permanently and cannot be altered.

software: Computer programs or segments of programs. The term was coined to contrast with "hardware", the actual mechanical parts and circuitry of a computer.

syntax error: An error in the way a command or information was given to the computer. Each computer language has its own structure. If the structure is not followed, the programmer has made a syntax error.

word processing: The entry, manipulation, editing, and storage of text using a computer.